FIG. 1

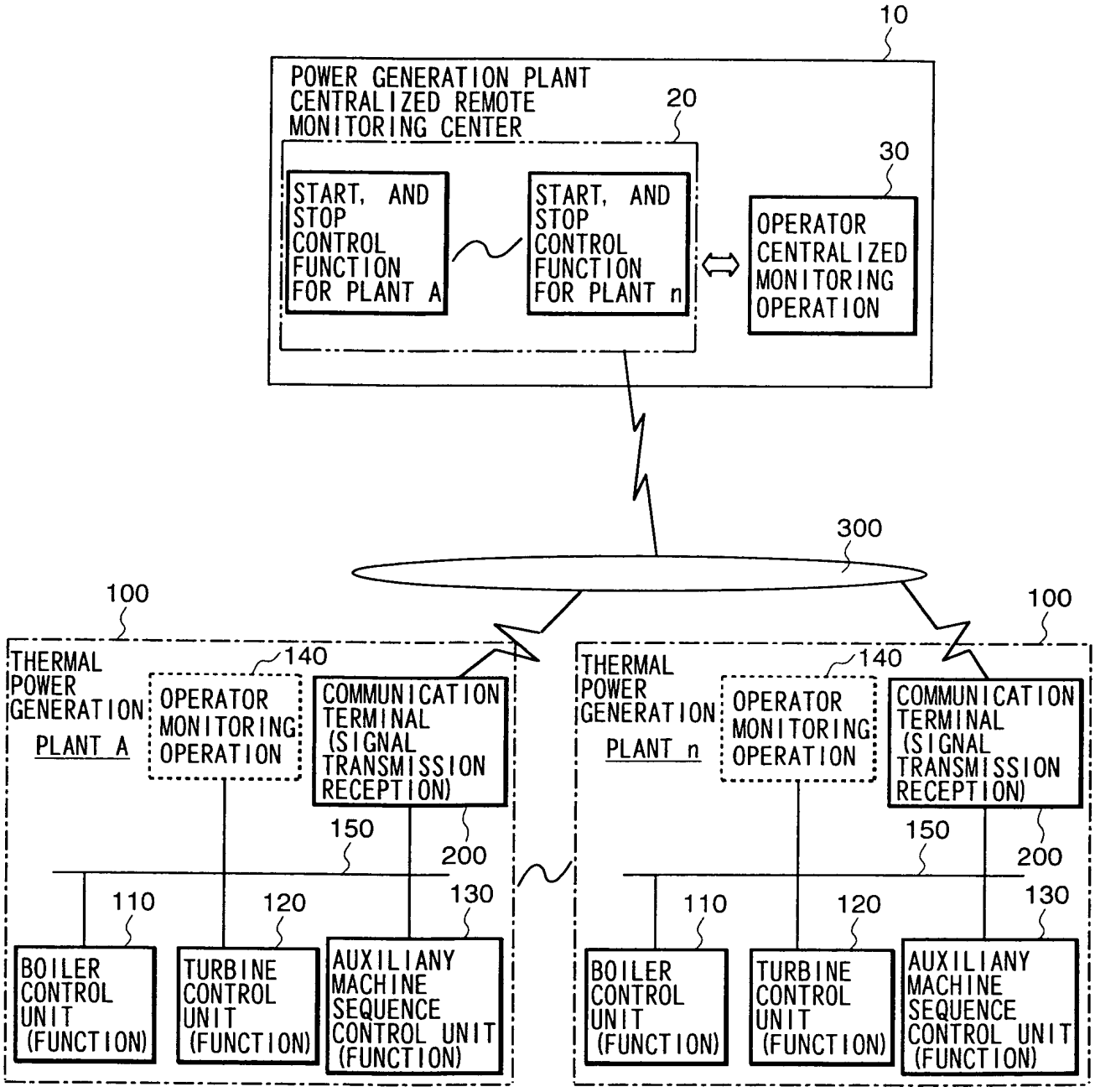

10
POWER GENERATION PLANT CENTRALIZED REMOTE MONITORING CENTER
20
30
START, AND STOP CONTROL FUNCTION FOR PLANT A
START, AND STOP CONTROL FUNCTION FOR PLANT n
OPERATOR CENTRALIZED MONITORING OPERATION
300
100
100
THERMAL POWER GENERATION PLANT A
140
OPERATOR MONITORING OPERATION
COMMUNICATION TERMINAL (SIGNAL TRANSMISSION RECEPTION)
150
200
110
120
130
BOILER CONTROL UNIT (FUNCTION)
TURBINE CONTROL UNIT (FUNCTION)
AUXILIANY MACHINE SEQUENCE CONTROL UNIT (FUNCTION)
THERMAL POWER GENERATION PLANT n
140
OPERATOR MONITORING OPERATION
COMMUNICATION TERMINAL (SIGNAL TRANSMISSION RECEPTION)
150
200
110
120
130
BOILER CONTROL UNIT (FUNCTION)
TURBINE CONTROL UNIT (FUNCTION)
AUXILIANY MACHINE SEQUENCE CONTROL UNIT (FUNCTION)

FIG. 2

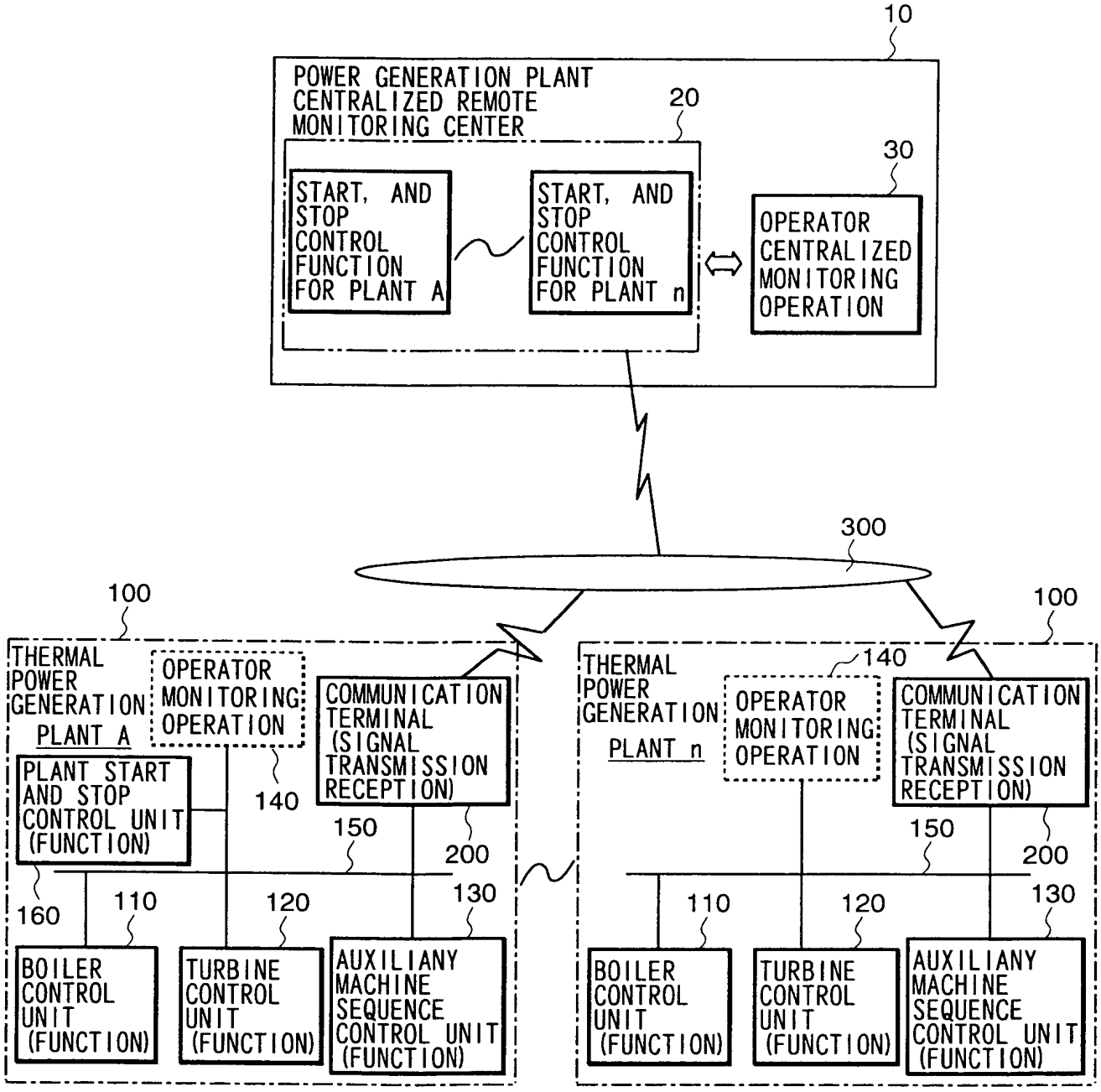

10
POWER GENERATION PLANT CENTRALIZED REMOTE MONITORING CENTER
20
START, AND STOP CONTROL FUNCTION FOR PLANT A
START, AND STOP CONTROL FUNCTION FOR PLANT n
30
OPERATOR CENTRALIZED MONITORING OPERATION
300
100
THERMAL POWER GENERATION PLANT A
OPERATOR MONITORING OPERATION
COMMUNICATION TERMINAL (SIGNAL TRANSMISSION RECEPTION)
PLANT START AND STOP CONTROL UNIT (FUNCTION)
140
150
200
160
110
120
130
BOILER CONTROL UNIT (FUNCTION)
TURBINE CONTROL UNIT (FUNCTION)
AUXILIANY MACHINE SEQUENCE CONTROL UNIT (FUNCTION)
100
THERMAL POWER GENERATION PLANT n
140
OPERATOR MONITORING OPERATION
COMMUNICATION TERMINAL (SIGNAL TRANSMISSION RECEPTION)
150
200
110
120
130
BOILER CONTROL UNIT (FUNCTION)
TURBINE CONTROL UNIT (FUNCTION)
AUXILIANY MACHINE SEQUENCE CONTROL UNIT (FUNCTION)

FIG. 3

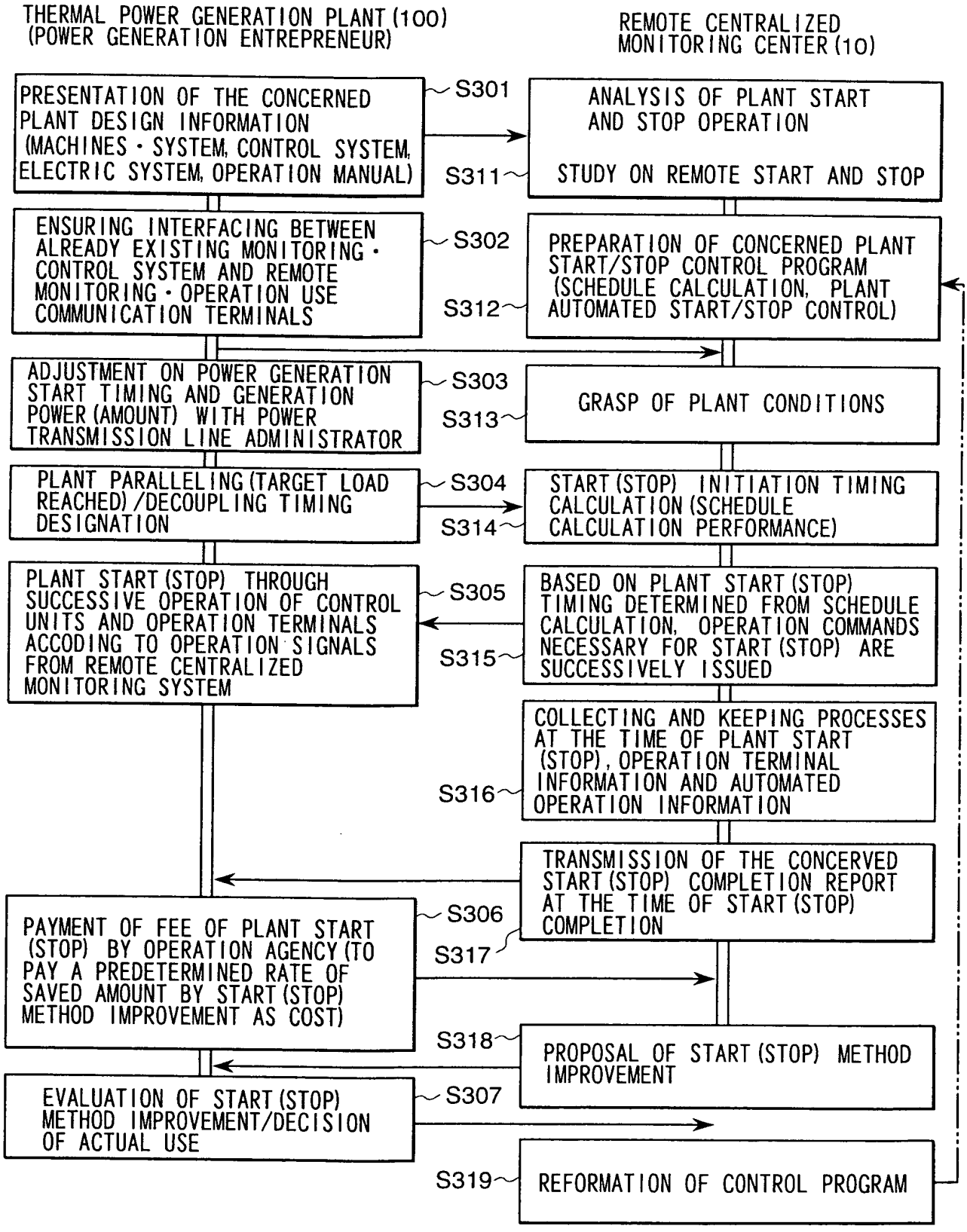

THERMAL POWER GENERATION PLANT (100)
(POWER GENERATION ENTREPRENEUR)
REMOTE CENTRALIZED MONITORING CENTER (10)
PRESENTATION OF THE CONCERNED PLANT DESIGN INFORMATION (MACHINES · SYSTEM, CONTROL SYSTEM, ELECTRIC SYSTEM, OPERATION MANUAL)
S301
ANALYSIS OF PLANT START AND STOP OPERATION
S311
STUDY ON REMOTE START AND STOP
ENSURING INTERFACING BETWEEN ALREADY EXISTING MONITORING · CONTROL SYSTEM AND REMOTE MONITORING · OPERATION USE COMMUNICATION TERMINALS
S302
PREPARATION OF CONCERNED PLANT START/STOP CONTROL PROGRAM (SCHEDULE CALCULATION, PLANT AUTOMATED START/STOP CONTROL)
S312
ADJUSTMENT ON POWER GENERATION START TIMING AND GENERATION POWER (AMOUNT) WITH POWER TRANSMISSION LINE ADMINISTRATOR
S303
GRASP OF PLANT CONDITIONS
S313
PLANT PARALLELING (TARGET LOAD REACHED) /DECOUPLING TIMING DESIGNATION
S304
START (STOP) INITIATION TIMING CALCULATION (SCHEDULE CALCULATION PERFORMANCE)
S314
PLANT START (STOP) THROUGH SUCCESSIVE OPERATION OF CONTROL UNITS AND OPERATION TERMINALS ACCODING TO OPERATION SIGNALS FROM REMOTE CENTRALIZED MONITORING SYSTEM
S305
BASED ON PLANT START (STOP) TIMING DETERMINED FROM SCHEDULE CALCULATION, OPERATION COMMANDS NECESSARY FOR START (STOP) ARE SUCCESSIVELY ISSUED
S315
COLLECTING AND KEEPING PROCESSES AT THE TIME OF PLANT START (STOP), OPERATION TERMINAL INFORMATION AND AUTOMATED OPERATION INFORMATION
S316
TRANSMISSION OF THE CONCERVED START (STOP) COMPLETION REPORT AT THE TIME OF START (STOP) COMPLETION
S317
PAYMENT OF FEE OF PLANT START (STOP) BY OPERATION AGENCY (TO PAY A PREDETERMINED RATE OF SAVED AMOUNT BY START (STOP) METHOD IMPROVEMENT AS COST)
S306
S318
PROPOSAL OF START (STOP) METHOD IMPROVEMENT
EVALUATION OF START (STOP) METHOD IMPROVEMENT/DECISION OF ACTUAL USE
S307
S319
REFORMATION OF CONTROL PROGRAM

FIG. 4

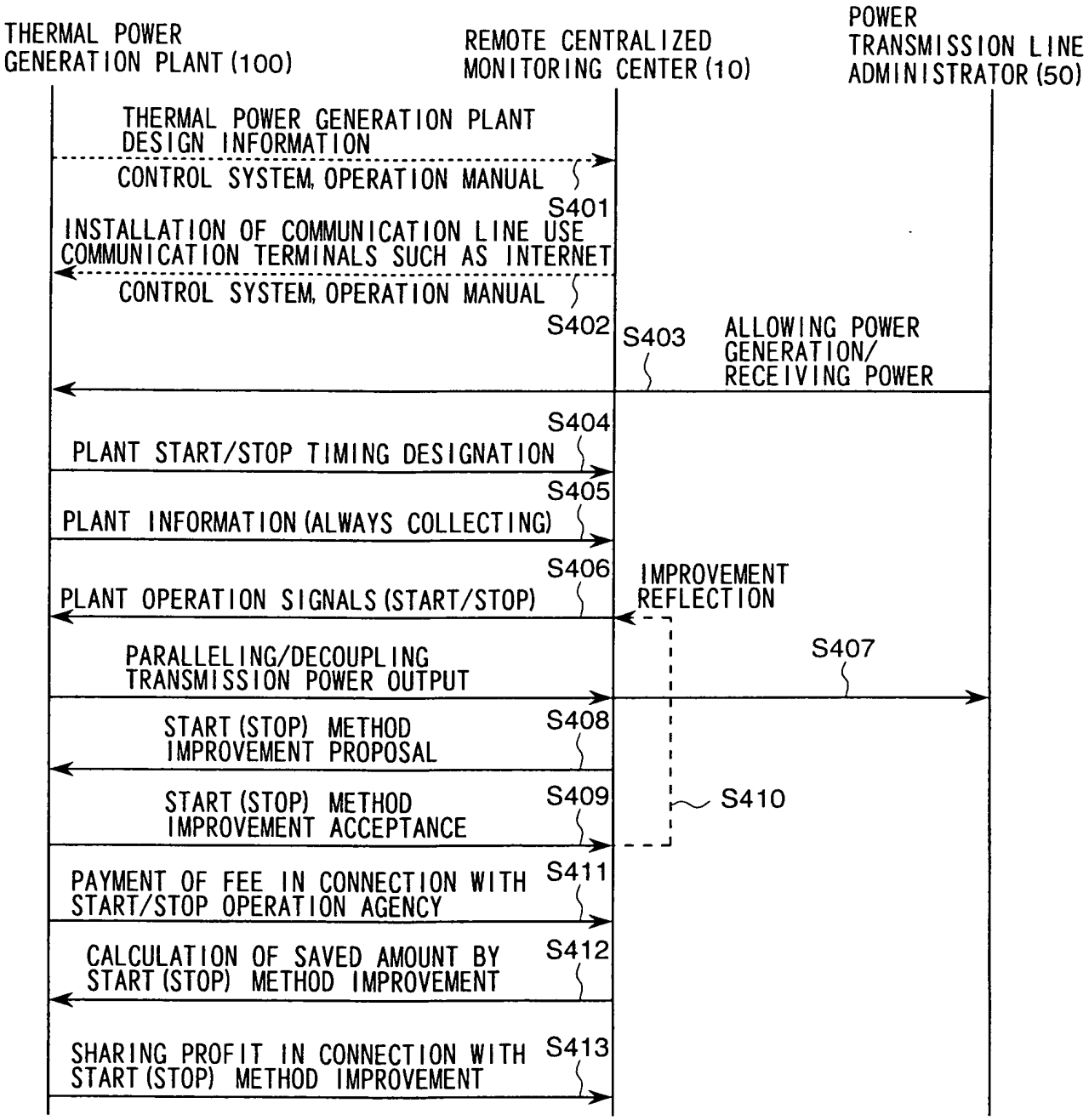
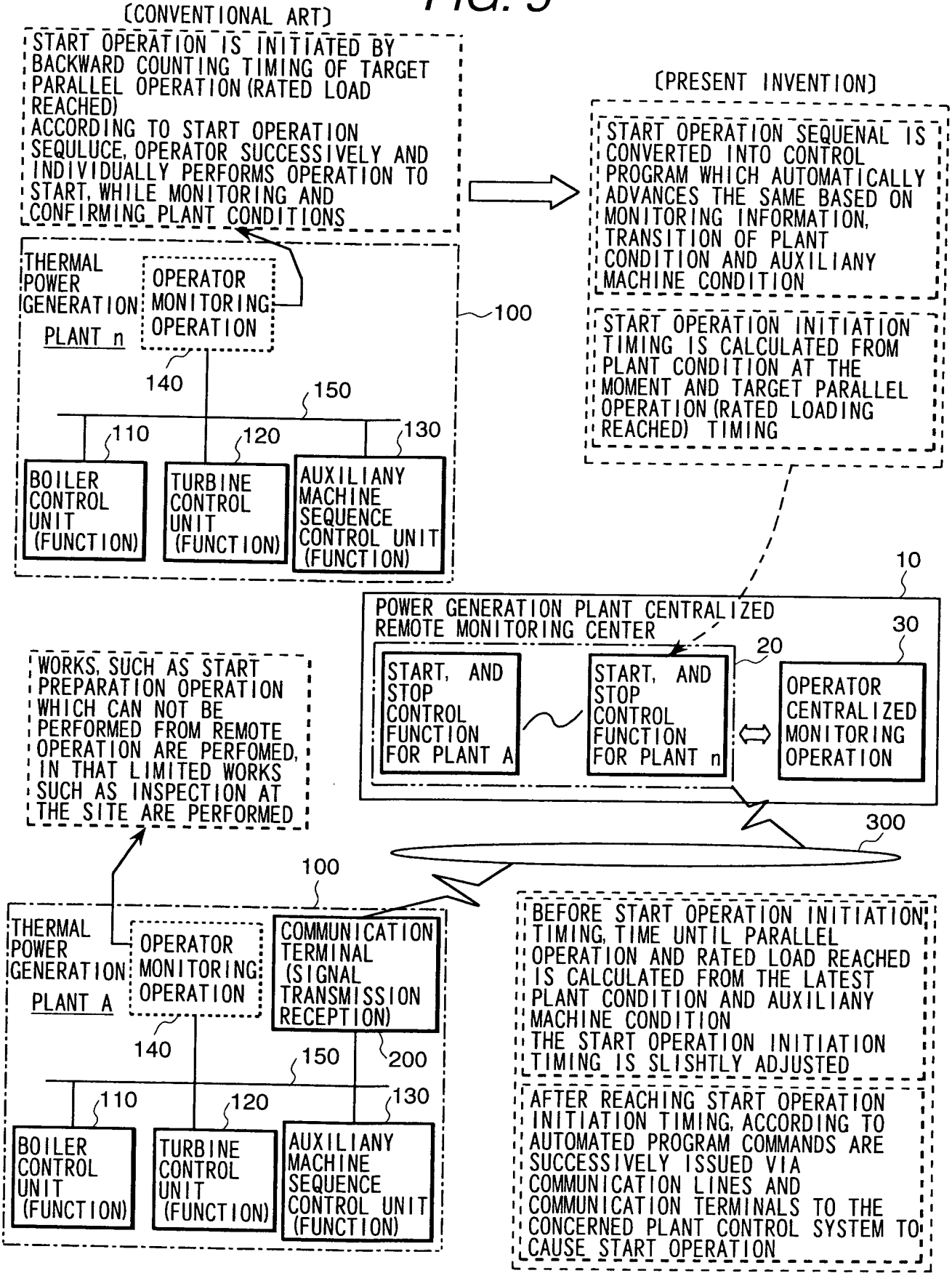

THERMAL POWER GENERATION PLANT (100)
REMOTE CENTRALIZED MONITORING CENTER (10)
POWER TRANSMISSION LINE ADMINISTRATOR (50)
THERMAL POWER GENERATION PLANT DESIGN INFORMATION
CONTROL SYSTEM, OPERATION MANUAL
S401
INSTALLATION OF COMMUNICATION LINE USE COMMUNICATION TERMINALS SUCH AS INTERNET
CONTROL SYSTEM, OPERATION MANUAL
S402
S403
ALLOWING POWER GENERATION/ RECEIVING POWER
S404
PLANT START/STOP TIMING DESIGNATION
S405
PLANT INFORMATION (ALWAYS COLLECTING)
S406
PLANT OPERATION SIGNALS (START/STOP)
IMPROVEMENT REFLECTION
PARALLELING/DECOUPLING TRANSMISSION POWER OUTPUT
S407
START (STOP) METHOD IMPROVEMENT PROPOSAL
S408
START (STOP) METHOD IMPROVEMENT ACCEPTANCE
S409
S410
PAYMENT OF FEE IN CONNECTION WITH START/STOP OPERATION AGENCY
S411
CALCULATION OF SAVED AMOUNT BY START (STOP) METHOD IMPROVEMENT
S412
SHARING PROFIT IN CONNECTION WITH START (STOP) METHOD IMPROVEMENT
S413

FIG. 5


(CONVENTIONAL ART)
START OPERATION IS INITIATED BY BACKWARD COUNTING TIMING OF TARGET PARALLEL OPERATION (RATED LOAD REACHED)
ACCORDING TO START OPERATION SEQULUCE, OPERATOR SUCCESSIVELY AND INDIVIDUALLY PERFORMS OPERATION TO START, WHILE MONITORING AND CONFIRMING PLANT CONDITIONS
THERMAL POWER GENERATION PLANT n
OPERATOR MONITORING OPERATION
100
140
150
110
120
130
BOILER CONTROL UNIT (FUNCTION)
TURBINE CONTROL UNIT (FUNCTION)
AUXILIANY MACHINE SEQUENCE CONTROL UNIT (FUNCTION)
(PRESENT INVENTION)
START OPERATION SEQUENAL IS CONVERTED INTO CONTROL PROGRAM WHICH AUTOMATICALLY ADVANCES THE SAME BASED ON MONITORING INFORMATION, TRANSITION OF PLANT CONDITION AND AUXILIANY MACHINE CONDITION
START OPERATION INITIATION TIMING IS CALCULATED FROM PLANT CONDITION AT THE MOMENT AND TARGET PARALLEL OPERATION (RATED LOADING REACHED) TIMING
10
POWER GENERATION PLANT CENTRALIZED REMOTE MONITORING CENTER
30
20
START, AND STOP CONTROL FUNCTION FOR PLANT A
START, AND STOP CONTROL FUNCTION FOR PLANT n
OPERATOR CENTRALIZED MONITORING OPERATION
300
WORKS, SUCH AS START PREPARATION OPERATION WHICH CAN NOT BE PERFORMED FROM REMOTE OPERATION ARE PERFOMED, IN THAT LIMITED WORKS SUCH AS INSPECTION AT THE SITE ARE PERFORMED
100
THERMAL POWER GENERATION PLANT A
OPERATOR MONITORING OPERATION
COMMUNICATION TERMINAL (SIGNAL TRANSMISSION RECEPTION)
140
150
200
110
120
130
BOILER CONTROL UNIT (FUNCTION)
TURBINE CONTROL UNIT (FUNCTION)
AUXILIANY MACHINE SEQUENCE CONTROL UNIT (FUNCTION)
BEFORE START OPERATION INITIATION TIMING, TIME UNTIL PARALLEL OPERATION AND RATED LOAD REACHED IS CALCULATED FROM THE LATEST PLANT CONDITION AND AUXILIANY MACHINE CONDITION
THE START OPERATION INITIATION TIMING IS SLISHTLY ADJUSTED
AFTER REACHING START OPERATION INITIATION TIMING, ACCORDING TO AUTOMATED PROGRAM COMMANDS ARE SUCCESSIVELY ISSUED VIA COMMUNICATION LINES AND COMMUNICATION TERMINALS TO THE CONCERNED PLANT CONTROL SYSTEM TO CAUSE START OPERATION